

What is claimed is:

1. A radio frequency identification (RFID) tag assembling system comprising:
an RFID module conveyor that moves a first substrate having multiple RFID modules;
an RFID antenna conveyor that moves a second substrate with respect to and into alignment with the first substrate, the second substrate having multiple RFID antennas;
and
a joiner to separate the RFID modules from the first substrate and attach the RFID modules to the RFID antennas on the second substrate.
2. The system of claim 1, wherein the joiner further comprises an adhesive applier.
3. The system of claim 1, wherein the joiner comprises a vacuum head, a sheering tool, and a placement arm.
4. The system of claim 1, wherein the first substrate comprises a reel-form substrate.

5. A radio frequency identification (RFID) tag assembling system comprising:

an RFID module conveyor that moves a first substrate having multiple RFID modules;

an RFID module tester in proximity to the RFID modules;

an RFID antenna conveyor that moves a second substrate having multiple RFID antennas;

a joiner in proximity to the first and second substrates; and

a control system coupled with the conveyors and the tester and comprising a machine-readable medium embodying information indicative of instructions that when performed by the control system results in operations comprising

moving the first substrate with respect to the tester,

identifying good RFID modules using the tester,

aligning the good RFID modules with the RFID antennas, and

forming RFID tags from the good RFID modules and the RFID antennas.

6. The system of claim 5, wherein the RFID module tester comprises multiple heads to test multiple RFID modules per test operation.

7. The system of claim 5, further comprising an adhesive applicer in proximity to the RFID modules.

8. The system of claim 5, wherein the joiner comprises a cutter in proximity to the first substrate, aligning the good RFID modules comprises aligning the good RFID modules and the RFID antennas with respect to the cutter, and forming the RFID tags comprises separating the good RFID modules from the first substrate using the cutter.

9. The system of claim 5, wherein the first substrate comprises a reel-form substrate.

10. The system of claim 9, wherein the RFID antenna conveyor comprises multiple redirecting members that feed the second substrate into a curved path allowing two or more of the RFID modules to be aligned with two or more of the RFID antennas per alignment operation.

11. The system of claim 10, wherein aligning the good RFID modules with the RFID antennas comprises aligning a skipped RFID antenna with a next available good RFID module following a passed-over bad RFID module.

12. The system of claim 11, wherein aligning and forming is performed in batches, and the next available good RFID module is selected from a next batch following a batch having the bad RFID module.

13. The system of claim 10, wherein aligning the good RFID modules with the RFID antennas comprises aligning a next available good RFID module with an RFID antenna when a bad RFID module is passed over.

14. The system of claim 9, wherein the reel-form substrate has two or more RFID modules side-by-side.

15. A method comprising:

obtaining information identifying which RFID modules on a first reel-form substrate are functional;

aligning the identified RFID modules with RFID antennas on a second reel-form substrate; and

forming RFID tags on the second reel-form substrate from the identified RFID modules of the first reel-form substrate and the RFID antennas.

16. The method of claim 15, wherein aligning and forming comprises aligning and forming the RFID tags in parallel.

17. The method of claim 16, further comprising selecting RFID module to RFID antenna assignments based on a pattern of bad RFID modules identified in the information.

18. The method of claim 17, wherein the first and second reel-form substrates have RFID modules and RFID antennas side-by-side.

19. The method of claim 16, wherein aligning and forming the RFID tags in parallel comprises differentially aligning and forming the RFID tags in response to identified bad modules.

20. The method of claim 15, wherein obtaining the information identifying functional RFID modules comprises testing the RFID modules on the first reel-form substrate to identify the RFID modules that are fully functional for a predetermined application.

21. The method of claim 20, further comprising programming the RFID modules for the predetermined application.

22. The method of claim 20, wherein testing the RFID modules comprises testing the RFID modules in parallel.

23. A machine-readable medium embodying information indicative of instructions that when performed by one or more machines result in operations comprising:

obtaining information identifying which RFID modules on a first reel-form substrate are functional;

aligning the identified RFID modules with RFID antennas on a second reel-form substrate; and

forming RFID tags on the second reel-form substrate from the identified RFID modules of the first reel-form substrate and the RFID antennas.

24. The machine-readable medium of claim 23, wherein aligning and forming comprises aligning and forming the RFID tags in parallel.

25. The machine-readable medium of claim 24, wherein the operations further comprise selecting RFID module to RFID antenna assignments based on a pattern of bad RFID modules identified in the information.

26. The machine-readable medium of claim 25, wherein the first and second reel-form substrates have RFID modules and RFID antennas side-by-side.

27. The machine-readable medium of claim 24, wherein aligning and forming the RFID tags in parallel comprises differentially aligning and forming the RFID tags in response to identified bad modules.

28. The machine-readable medium of claim 23, wherein obtaining the information identifying functional RFID modules comprises testing the RFID modules on the first reel-form substrate to identify the RFID modules that are fully functional for a predetermined application.

29. The machine-readable medium of claim 28, wherein the operations further comprise programming the RFID modules for the predetermined application.

30. The machine-readable medium of claim 28, wherein testing the RFID modules comprises testing the RFID modules in parallel.